

WHAT IS CLAIMED IS:

1. A control device, which constitutes a mobile communication system together with a mobile host, or a moving network comprising a plurality of mobile hosts, and a plurality of mutually connectable access interfaces each constituting an interface for the connection to a core network at the mobile host or moving network, and which serves to control a handover relating to the connection to the core network at the access interfaces,

comprising:

connection status acquiring means for acquiring information on the connection status to the core network at each access interface, from each access interface;

handover predicting means for predicting a subsequent handover on the basis of the information on the connection status to the core network at each access interface; and

changing means for dynamically changing the access interface adopted as the connection interface in accordance with predetermined logic when a predetermined condition is satisfied on the basis of the information on the connection status to the core network at each access interface or the prediction information for a subsequent handover.

2. The control device according to claim 1,

wherein, upon dynamically changing the access interface, the changing means continue transmission and receipt of data with respect to an appropriate access interface capable of maintaining a predetermined communication quality, and maintain the connection to the core network with respect to an access interface other than the appropriate access interface while causing the access interface to enter a closed state in which the transmission and receipt of data is disabled.

3. The control device according to claim 1, wherein, upon dynamically changing the access interface, the changing means continue the transmission and receipt of data, when a mobile host is connected to the appropriate access interface which is capable of maintaining a predetermined communication quality and when the access interface connected to the mobile host is connected to the appropriate access interface; and

continue communications by establishing a connection between the mobile host and the appropriate access interface or a connection between the access interface connected to the mobile host and the appropriate access interface, when the mobile host is not connected to the appropriate access interface and the access interface connected to the mobile host is not connected to the appropriate access interface.

4. The control device according to claim 1,
further comprising:

downlink control means that perform control so
that downlink data from the core network is transmitted via
5 an access router that is connected to the appropriate
access interface, among the access routers in the core
network.

5. The control device according to claim 1,
wherein the connection status acquiring means are
10 constituted comprising:

locational relationship tracking means for
tracking the locational relationship of all the access
interfaces connected to the mobile hosts and the moving
network; and

15 information receiving means for receiving
information on the connection status between each access
interface and the core network, and switching information
that includes identification information for identifying
the previous access router and the destination access
20 router at the time switching occurs, as well as switching
end time information, the information being reported by
each access interface; and

wherein the handover predicting means are
constituted comprising:

25 velocity tracking means for tracking at least
velocity information pertaining to the mobile hosts and the

moving network in accordance with a predetermined tracking logic, on the basis of the locational relationship of each access interface thus tracked and the connection status information and switching information thus received; and

5 predicting means for predicting subsequent movement and changes in the field strength based on the tracked information.

6. The control device according to claim 5, wherein, for a mobile host and moving network that are multihomed by means of two access interfaces,

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 upon recognizing, on the basis of the switching information from each access interface, that the adjacent switchings are executed by the same access router, the control device tracks a value obtained by dividing the distance x by the switching time difference t , as the velocity pertaining to the mobile host and moving network, based on a switching time difference t and a distance x between the access interfaces for the adjacent switchings.

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7. The control device according to claim 5, wherein, for a mobile host and moving network that are multihomed by means of three or more access interfaces,

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 upon recognizing, on the basis of the switching information from each access interface, that the adjacent switchings are executed by the same access router, the control device tracks, based on a plurality of combinations of the switching time difference t and the

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distance x between the access interfaces for the adjacent switchings, a direction which links the two access interfaces and where the first-switched access interface lies foremost as the direction of movement, and a value
5 obtained by dividing the distance x by the switching time difference t as the velocity, with respect to each combination; and

finds the vector sum of the velocity vectors for each combination and tracks the direction of movement
10 and velocity of the mobile host and moving network by means of the vector sum thus obtained.

8. The control device according to claim 1, wherein:

the predetermined condition is that the field
15 strength between the access interface and the core network should be less than a predetermined threshold value.

9. The control device according to claim 1, wherein:

the predetermined condition is that a
20 predicted value for the field strength between the access interface and the core network which is predicted on the basis of subsequent movement prediction should be less than a predetermined threshold value.

10. The control device according to claim 1,
25 wherein:

the predetermined logic is that of selecting

an access interface that corresponds with a maximum-value field strength from among the field strengths between each access interface and the core network.

11. The control device according to claim 1,
5 wherein:

the predetermined logic is that of selecting an access interface that corresponds with a predicted value for the maximum-value field strength from among predicted values for the field strengths between each access
10 interface and the core network, which are predicted on the basis of subsequent movement prediction.

12. A handover control method by a mobile communication system that is constituted comprising a mobile host, or a moving network comprising a plurality of
15 mobile hosts; a plurality of mutually connectable access interfaces each constituting an interface for the connection to a core network at the mobile host or moving network; and a control device for controlling a handover relating to the connection to the core network at the access
20 interfaces,

wherein the control device dynamically changes the access interface adopted as the connection interface in accordance with predetermined logic when a predetermined condition is satisfied on the basis of the connection
25 status to the core network at each access interface or the prediction information for a subsequent handover.

13. A mobile communication system that is constituted comprising a mobile host, or a moving network comprising a plurality of mobile hosts; a plurality of mutually connectable access interfaces each constituting an interface for the connection to a core network at the mobile host or moving network; and a control device for controlling a handover relating to the connection to the core network at the access interfaces, wherein the control device comprises:

connection status acquiring means for acquiring information on the connection status to the core network at each access interface, from each access interface;

handover predicting means for predicting a subsequent handover on the basis of the information on the connection status to the core network at each access interface; and

changing means for dynamically changing the access interface adopted as the connection interface in accordance with predetermined logic when a predetermined condition is satisfied on the basis of the information on the connection status to the core network at each access interface or the prediction information for a subsequent handover.